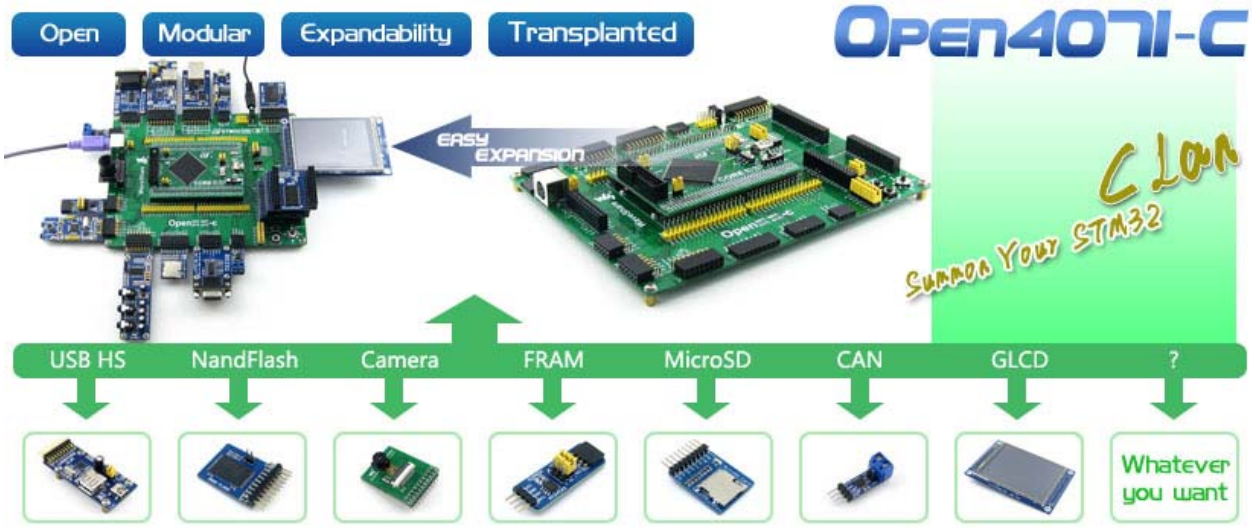
Open407I-C Package B

DVD с ПО и примерами можно скачать по ссылке:

https://mega.co.nz/#!Jc0XBSSJ!94-hAujX5jAs29t4q7VTth4PmF74IBBRwtnESeEIRN4

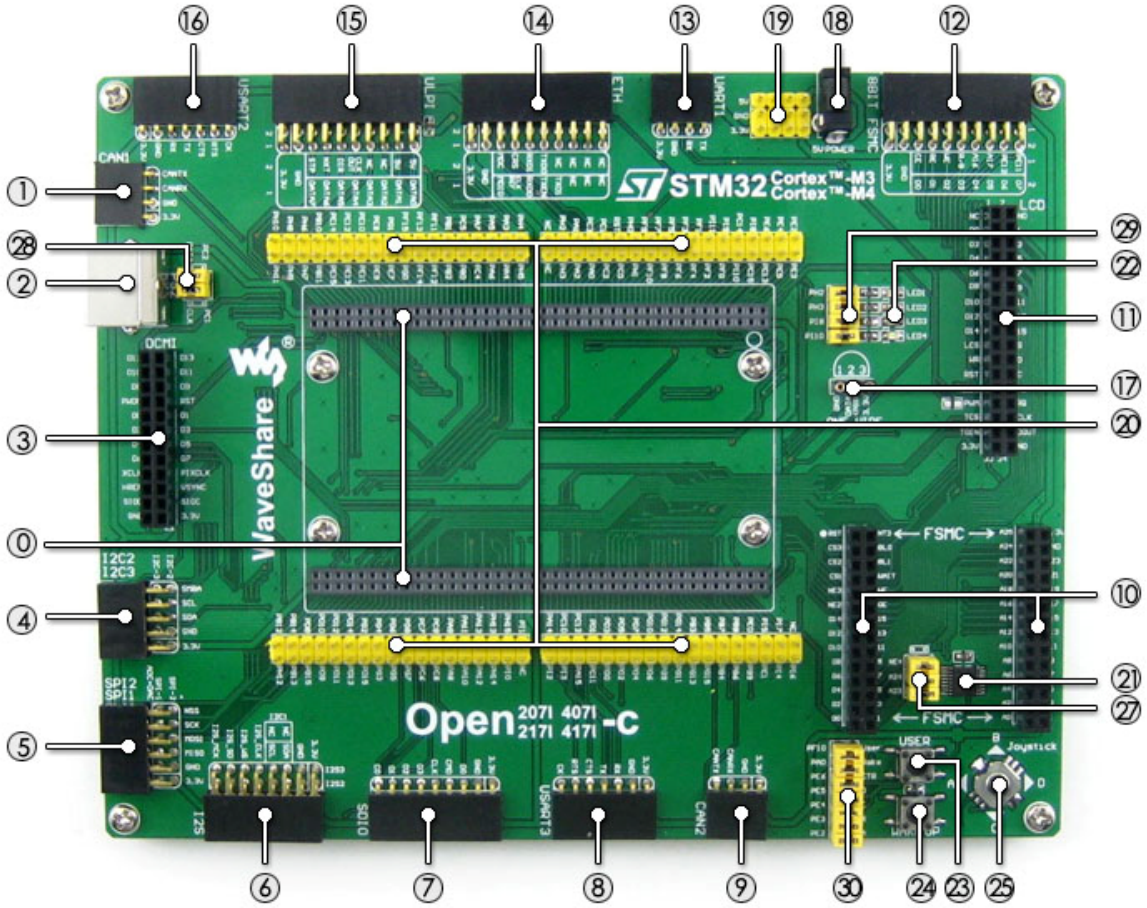


Overview

Open407I-C is an STM32 development board designed for the **STM32F407IGT6** microcontroller, consists of the mother board and the MCU core board **Core407I**.

The Open407I-C supports further expansion with various optional accessory boards for specific application. The modular and open design makes it the ideal for starting application development with STM32F4 series microcontrollers.

What's on the mother board



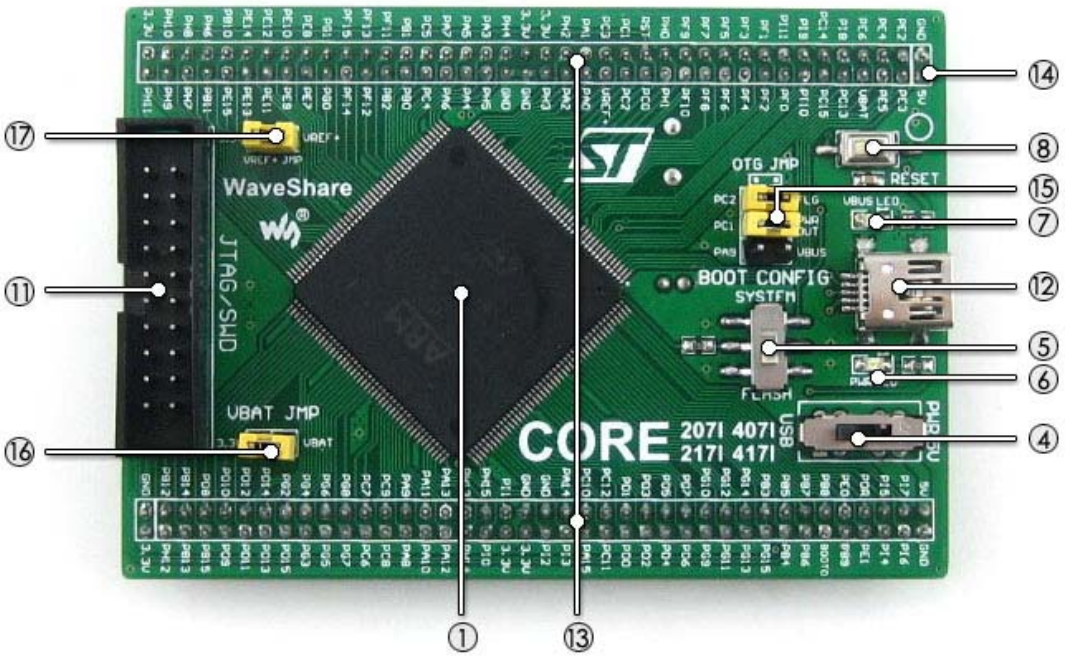
1. MCU core board connector: for easily connecting the Core407I
2. CAN1 interface: communicates with accessory boards which feature the CAN device conveniently
3. PS/2 interface: easily connects to PS/2 keyboard and/or mouse
4. DCMI interface: for connecting camera module
5. I2C2 / I2C3 interface: easily connects to I2C peripherals such as I/O expander (PCF8574), EEPROM (AT24Cxx), etc.
6. SPI1 / SPI2 interface
    - easily connects to SPI peripherals such as DataFlash (AT45DBxx), SD card, MP3 module, etc.
    - SPI1 features AD/DA alternative function, supports connecting AD/DA module as well
7. I2S2 / I2S3 / I2C1: for connecting I2S peripherals, such as Audio module
8. SDIO interface: for connecting Micro SD module, features much faster access speed rather than SPI
9. USART3 interface: easily connects to RS232, RS485, USB TO 232, etc.
10. CAN2 interface: communicates with accessory boards which feature the CAN device conveniently
11. 16-bit FSMC interface: easily connects to peripherals such as NorFlash, SRAM, etc.
12. 16-bit FSMC + SPI interface: for connecting touch screen LCD
13. 8-bit FSMC interface: easily connects to peripherals such as NandFlash, Ethernet, etc.
14. UART1 interface: easily connects to RS232, RS485, USB TO 232, etc.
15. Ethernet interface: easily connects the MCU to ethernet network by using an additional ethernet module

16. ULPI interface: for connecting high-speed USB peripheral (the STM32F407I integrates USB HS controller without any PHY device)
17. USART2 interface: easily connects to RS232, RS485, USB TO 232, etc.
18. ONE-WIRE interface: easily connects to ONE-WIRE devices (TO-92 package), such as temperature sensor (DS18B20), electronic registration number (DS2401), etc.
19. 5V DC jack
20. 5V/3.3 V power input/output: usually used as power output, also common-grounding with other user board
21. MCU pins connector: all the I/O ports are accessible on expansion connectors for further expansion
22. 74LVC139: used for FSMC expansion, make it possible to connect multi devices through FSMC at the same time, such as LCD and NAND FLASH
23. LEDs: convenient for indicating I/O status and/or program running state
24. User key: convenient for I/O input and/or interact with running code
25. Wake-Up button: wake up the STM32 MCU from sleep mode, also used as regular user key
26. Joystick: five positions
27. Crystal empty slot (on bottom side): for soldering 50M active crystal oscillator, which'll provide clock to DCMI
28. 74LVC139 selection jumper: for FSMC chip select
29. PS/2 jumper
30. LEDs jumper
31. User key / joystick jumper

For jumpers 27-30:

- short the jumper to connect to I/Os used in example code
- open the jumper to connect to other custom pins via jumper wires

What's on the Core407I



1. STM32F407IGT6: the high performance STM32 MCU which features:
    - **Core:** Cortex-M4 32-bit RISC
    - **Feature:** a full set of single-cycle DSP instructions
    - **Operating Frequency:** 168MHz, 210 DMIPS/1.25 DMIPS/MHz
    - **Operating Voltage:** 1.8V-3.6V
    - **Package:** LQFP176
    - **Memories:** 1024kB Flash, 192+4kB SRAM
    - **MCU communication Interfaces:**
        - 3 x SPI, 4 x USART, 2 x UART, 2 x I2S, 3 x I2C
        - 1 x FSMC, 1 x SDIO, 2 x CAN
        - 1 x USB 2.0 high-speed/full-speed device/host/OTG controller with dedicated DMA, ULPI and on-chip full-speed PHY
        - 1 x 10/100 Ethernet MAC
        - 1 x 8 to 14-bit parallel camera interface
    - **AD & DA converters:** 3 x AD (12-bit, 1μs, shares 24 channels); 2 x DA (12-bit)
    - **Debugging/Programming:** supports JTAG/SWD (serial wire debug) interfaces, supports IAP
2. AMS1117-3.3 (on bottom side), 3.3V voltage regulator
3. MIC2075 (on bottom side), onboard USB power management device
4. Power supply switch, powered from 5Vin or USB connection
5. Boot mode switch, for configuring BOOT0 pin
6. Power indicator
7. VBUS LED
8. Reset button
9. 8M crystal oscillator (on bottom side)
10. 32.768K crystal (on bottom side), for internal RTC with calibration
11. JTAG/SWD interface: for debugging/programming
12. USB interface
    - as DEVICE, used for establishing USB communication between PC and the STM32 development board
    - as HOST, connecting to USB devices such as USB flash drive through a USB OTG cable
13. MCU pins expander, VCC, GND and all the I/O ports are accessible on expansion connectors for further expansion
14. 5Vin pinheader, 5V power supply is required when using USB HOST/OTG
15. USB HOST/OTG jumper
    - short the jumper when using USB HOST/OTG
    - open the jumper to disconnect from I/O port
16. VBAT selection jumper
    - short the jumper to use system power supply
    - open the jumper to connect the VBAT to external power, such as battery
17. VREF selection jumper
    - short the jumper to connect VREF+ to VCC
    - open the jumper to connect VREF+ to other custom pin via jumper wire

Note:
The Open407I-C supports programming via STM32 UART bootloader, a USB TO UART accessory board is also provided in the package.
The Open407I-C does NOT integrate any debugging function, a debugger is required.

JTAG/SWD interfaces

The figure 1, and 2 show the header pinouts of JTAG/SWD interface

Figure 1. JTAG Header Pinout

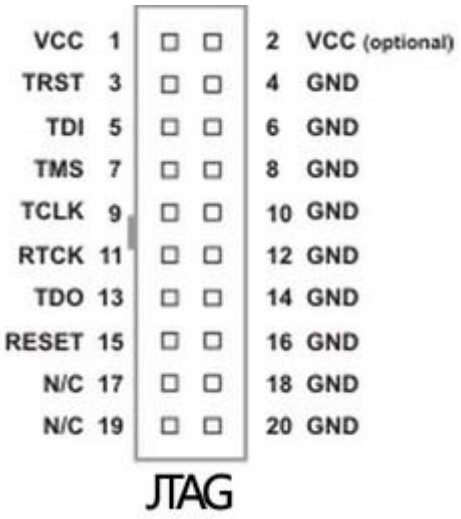
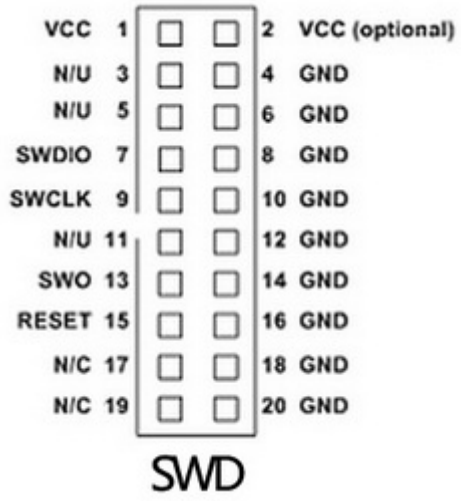



Figure 2. SWD Header Pinout